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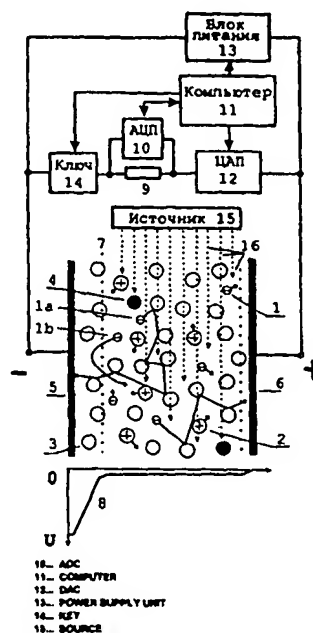
В отношении двухбуквенных кодов, кодов языков и других сокращений см. «Пояснения к кодам и сокращениям», публикуемые в начале каждого очередного выпуска Бюллетеня РСТ.

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(54) Title: GAS ANALYSIS METHOD AND IONISATION DETECTOR FOR CARRYING OUT SAID METHOD

(54) Название изобретения: СПОСОБ АНАЛИЗА ГАЗОВ И ИОНИЗАЦИОННЫЙ ДЕТЕКТОР ДЛЯ ЕГО ОСУЩЕСТВЛЕНИЯ

(57) Abstract: The inventive gas analysis method and ionisation detector for carrying out said method makes it possible to carry out the qualitative and quantitative analysis of impurities in a basic gas. Said detector operates in a broad gas pressure range up to and including atmospheric pressure. Said impurity analysis method is carried out by analysing energy of electrons which are produced by ionisation of impurities atom or molecules during the collisions thereof with metastable atoms of inert gases or monochromatic photons. The analysis of the energy of electrons produced by the collisions of the impurities with the metastable atoms in a plasma afterglow which is produced between flat electrodes is carried out by obtaining a second current derivative in relation to voltage between cathode and anode. Also, in order to analysing the electron energy, an array can be arranged between said anode and cathode and an external ultraviolet source can be used for ionising the impurities in an equipotential space between said array and the anode. The interelectrode space and the gas pressure are selected in such a way that the distortions of the measured electron energy resulting from the collisions with the gas atoms and molecules are equal to or less than the predetermined

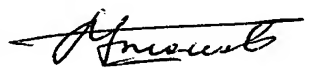


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ABSTRACT

A method of gas analysis and an ionization detector for its implementation provide a qualitative and quantitative analysis of impurities in a main (buffer) gas. The detector can operate in a wide range of gas pressures, up to atmospheric one. The identification of impurities is provided by analyzing the energy of electrons produced by the ionization of the impurity atoms or molecules in their collisions with long living atoms of a buffer gas or with monochromatic photons. The energy analysis of electrons produced in the collisions of impurities with metastable atoms in the afterglow plasma ignited between two plane electrodes is performed by determining the second derivative of electric current dependence on the voltage applied between the anode and the cathode. The electron energy can also be analyzed by positioning a grid between the anode and the cathode and by using an external ultraviolet radiation source to ionize the impurities in the equipotential space between the grid and the anode. The inter-electrode gap and the gas pressure are chosen in such a way that the distortions in the electron energy measurement due to the collisions with the gas atoms or molecules should not exceed a prescribed value.

*Translated to best
of my knowledge*

April 4, 2005 
/ Alexander Tsyganov